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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,501	03/07/2002	Vladimir Kliatzkin	468/1	7024

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EXAMINER

ALEJANDRO, RAYMOND

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 12/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/070,501

Applicant(s)

KLIATZKIN, VLADIMIR

Examiner

Raymond Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 28-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

This office communication is being presented responsive to the amendment of 11/02/05. The applicant has overcome the 35 USC 112 rejection and the 35 USC 102 rejection. Refer to the abovementioned amendment for substance of on applicant's rebuttal arguments and remarks. However, the present claims are again rejected over a newly found reference as seen hereinbelow. Thus, the application is finally rejected for the reasons of record:

Claim Objections

1. Claim 46 is objected to because of the following informalities: a non-capital letter should be used in the term "Silver", for instance, "silver". Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 28, 31, 34, 41-43 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Yardney 2812376.

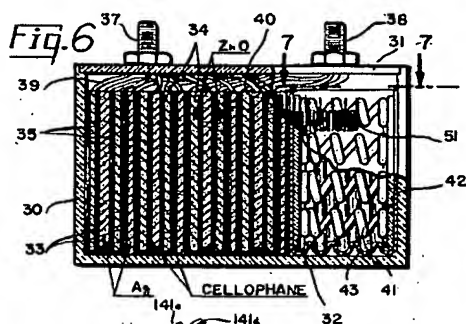
The present application is directed to a battery cell wherein the disclosed inventive concept comprises the specific unit configuration.

Regarding claim 28:

Yardney disclose an electric battery comprising a casing an a substantially vertical partition horizontally movable therein; an electrode assembly in said casing including a plurality of electrode plates and separator means between said plates; pressure exerting means inserted in said casing on the other side of the partition; thereby maintaining said electrode assembly under compression between said partition and the other of said walls (CLAIM 1). The battery comprises a liquid electrolyte permeating said electrode assembly and a flexible electrolyte-impermeable envelope surrounding said pressure-exerting means (CLAIM 2). Yardney discloses the factor of maintaining constant internal pressure (COL 3, lines 5-45). *Thus, Yardney is concerned with counteracting periodic changes of electrode volumes.*

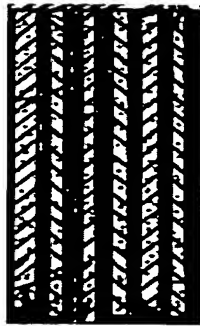
Yardney also discloses the use of positive and negative electrodes consisting essentially of zinc oxide and silver, respectively (COL 3, lines 53-64) which are spaced from one another by separators made of cellophane (COL 3, lines 57-65).

Figure 6 below illustrates the specific battery embodiment and it can be appreciated that the “cellophane” separator material mostly wraps, covers or envelops both electrode plates 33 and 34:



Enlarged portion of Figure 6 illustrate that the separator material, at a minimum, wraps, covers or envelops three (3) sides of the electrode plates:

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Regarding claim 31:

Yardney also discloses the use of positive and negative electrodes consisting essentially of zinc oxide and silver, respectively (COL 3, lines 53-64).

Regarding claim 34:

Yardney uses a coil spring as part of the pressure-exerting means (COL 4, lines 10-15).

As to claim 41:

Disclosed is the casing of relatively rigidity, preferably plastic material and including a movable partition of like material wherein the partition divides the interior of the casing into two compartments of variable size (COL 3, lines 45-60). It is revealed that the movable partition 32 is under pressure (COL 3, lines 65-68). *Thus, since the partition is part of the casing, it is contended that the casing per se also acts as the specific pressure applying means. Further, the term "elastic" is a relative term and since the present claim language fails to stipulate the specific degree of elasticity, it is further averred that Yardney's casing must exhibit certain degree of elasticity i.e. a low degree of elasticity represents certain degree of elasticity.*

As to claims 42-43 and 45:

Yardney employs a cellophane separator 35 (COL 3, lines 59-62). *The specific swelling, electrode-material ion impermeability and dendrite growth impeding characteristic or properties are inherent properties/characteristics of the separator material.*

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Thus, Yardney anticipates the present claims.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 29 and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yardney 2812376 as applied to claim 28 above, and further in view of Devitt et al 3669746.

Yardney is applied, argued and incorporated herein for the reasons above. Nevertheless, Yardney does not expressly disclose the specific substrate material, wound electrode and the woven separator.

As to claims 29 and 37:

Devitt et al disclose a secondary alkaline battery having a zinc-containing electrode (TITLE/ COL 1, lines 35-40) including silver/zinc alkaline cells (COL 1, lines 42-47). Devitt et

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al discuss the importance of applying a certain pressure to the stack of electrodes through the separator layers (COL 2, lines 9-12), the intimate pressure engagement between the electrode and the separator (COL 2, lines 69 to COL 3, lines 3) and the pressure stacking of the electrodes (COL 4, lines 22-27).

In particular, Devitt et al disclose the use of flexible electrode plate capable of being spirally wound which may be a flat-grid structure such as woven wire screen or perforated sheet metal or expanded mesh (COL 4, lines 19-23 and lines 29-35).

As to claim 35:

Devitt et al illustrate spirally wound battery cell (FIGURE 1-2/ COL 40-42/ COL 4, lines 20-22)

As to claim 36:

Devitt et al disclose the use of woven fabric separators such as cellophane (COL 1, lines 70-73/ COL 5, lines 69-72)

In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to use the specific substrate material of Devitt et al in the rechargeable battery of Yardney as Devitt et al disclose that such specific substrate material provides a long lasting base onto which the active material remains firmly in electrical contact, electrochemically active and reversible throughout the life of the battery.

With respect to the wound electrode, it would have been obvious to one skilled in the art at the time the invention was made to use the specific wound electrode of Devitt et al in the rechargeable battery of Yardney as Devitt et al disclose that the battery cell and the electrode per se are otherwise made to accept a desired configuration and to allow pressure stacking with

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relation to the rest of the cell contents as confined within the finished cell. Thus, the spirally (helically) wound arrangement of the battery cell and the electrode permits to better pressure stacking the cell.

With respect to the woven separator, it would have been obvious to one skilled in the art at the time the invention was made to use the specific woven separator of Devitt et al in the rechargeable battery of Yardney as Devitt et al disclose that the woven separator is a homogeneous and uniform structure having highly absorbing and retentive of electrolyte and provides a uniformly wetted interface with the electrochemically active material.

7. Claims 29-30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yardney 2812376 as applied to claim 28 above, and further in view of Dews et al 3912538.

Yardney is applied, argued and incorporated herein for the reasons above. Nevertheless, the preceding prior art does not expressly disclose the specific fabric thickness.

Dews et al disclose a carbon fiber substrate for use as an electrode (ABSTRACT) wherein the carbon fiber has a fiber thickness of 6-8 microns (COL 2, lines 55-62). In particular, Dews et al discuss that the electrode is particularly adapted for use with alkaline cells (*emphasis added*) (COL 4, lines 2-7).

In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to use the specific fabric thickness of Dews et al in the rechargeable battery of Yardney as Dews et al discloses that electrodes made from such fabric having the specific thickness have good chemical stability and electrical conductivity, permits excellent control of the reaction interface of the electrode providing a relatively inexpensive electrode.

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8. Claims 32-33 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yardney 2812376 as applied to claim 28 above, and further in view of Ruetschi 4192914.

Yardney is applied, argued and incorporated herein for the reasons above. Nevertheless, Yardney does not expressly disclose the specific electrode thickness, particle size and carbon active material.

As to claims 32:

Ruetschi makes known an alkaline battery comprising Ag-Zn electrochemical system (COL 5, lines 44-46/ COL 1, lines 4-10) wherein the electrode is from 0.1 to 2 mm thick (COL 3, lines 20-25).

Regarding claim 33:

It is disclosed that the average grain size of the particulate is 2.6 to 3.4 micron (EXAMPLE 1/ COL 4, lines 35-40).

Regarding claim 46:

Ruetschi reveals that carbon black can be use as an active material additive (COL 3, lines 9-15).

In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to use the specific electrode thickness of Ruetschi in the rechargeable battery of Yardney as Ruetschi discloses that such electrode thickness is suitable for providing an electrically conductive electrode structured adapted to the battery utilization.

With respect to the particle size, it would have been obvious to one skilled in the art at the time the invention was made to use the specific particle size of Ruetschi in the rechargeable

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battery of Yardney as Ruetschi discloses that such specific particle size of the electrochemical active material provides improved charge/discharge characteristics.

With respect to the carbon active material, it would have been obvious to one skilled in the art at the time the invention was made to use the specific carbon active material of Ruetschi in the rechargeable battery of Yardney as Ruetschi discloses carbon material is used as an additive in the active material to impede the diffusion of the silver material.

9. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yardney 2812376 as applied to claim 28 above, and further in view of Ferrando 5045349.

Yardney is applied, argued and incorporated herein for the reasons above. Nevertheless, Yardney does not expressly disclose the specific metal-coated graphite fiber substrate.

Ferrando teaches an alkaline secondary battery (TITLE) comprising a silver-nickel particle coated graphite fiber (ABSTRACT/ COL 1, lines 52-55/ COL 1, lines 65-68).

In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to use the specific metal coated graphite fiber substrate of Ferrando in the battery of Yardney as Ferrando disclose that such specific coating provides an electrode which operates at near silver voltages while being lighter weight and using less costly materials.

10. Claims 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yardney 2812376 as applied to claim 28 above, and further in view of Ferrando 5283138.

Yardney is applied, argued and incorporated herein for the reasons above. Nevertheless, Yardney does not expressly disclose the specific metal-coated graphite fiber substrate.

Ferrando'138 teaches an alkaline secondary battery (COL 5, lines 4-6) comprising a metal-coated graphite fiber of the current collector/support grid (ABSTRACT/ COL 2, lines 44-50/ COL 2, line 67 to COL 3, lines 2). It is disclosed that the copper coated thin layer has a thickness of 10 micron (COL 3, lines 43-49).

In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to use the specific metal coated graphite fiber substrate of Ferrando'138 in the battery of Yardney as Ferrando'138 disclose that such specific coating provides a light weight electrode with enhanced characteristics for supporting active material and providing electrical conductivity.

11. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yardney 2812376 in view of Ferrando 5045349 as applied to claim 38 above, and further in view of Mansfield Jr et al 5306580

Yardney and Ferrando'349 are applied, argued and incorporated herein for the reasons above. Nevertheless, the preceding prior art does not expressly disclose the specific metal coating material.

Mansfield Jr et al disclose an electrochemical cell (TITLE) wherein the alkaline battery uses a zinc anode and a silver-based cathode (COL 1, lines 31-45) and wherein an electrically conductive substrate is coated by with a metal selected from at least indium and lead and said coated substrate contacts the electrode material (COL 2, lines 53-62/ CLAIM 1). Mansfield Jr et al is directed to alkaline cells with a Zinc-containing electrode (COL 2, lines 42-48).

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In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to use the specific metal coating material of Mansfield Jr et al in the battery of both Yardney and Ferrando'349 as Mansfield Jr et al teach that such specific coating material are capable of reducing gas generation at the interior surface of the anode cup without interfering with the chemical reactions that enable the cell to produce an electrical current.

12. Claims 42-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yardney 2812376 in view of the WO 98/38686 document (Note: US patent 6207316 to Pauling belongs to the same patent family of the WO'686 document, thus, for purposes of rejection and paragraph citation the examiner has used the US patent '316. The WO 98/38686 has been officially cited hereinabove as it has an earlier effective publication date for 102(b) statutory purposes).

Yardney is applied, argued and incorporated herein for the reasons above. Nevertheless, the preceding prior art does not expressly disclose the specific separator material.

Regarding claims 42-44:

Pauling discloses the separator material can be made from polyethylene and polypropylene (COL 27-33). *It is noted Pauling uses the same separator material as instantly claimed, thus, the separator material must exhibit the specific swelling and impermeability properties.*

Regarding claim 45:

Pauling teaches the separator prevent dendrite formation during recharging (COL 6, lines 27-35/ CLAIM 8).

In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to use the specific separator material of Pauling in the battery of Yardney as Pauling teaches that separator made of such claimed materials provide satisfactory structural integrity and mechanical stability while still maintaining the degree of ion impermeability required in a battery. Additionally, the specific separator material prevent dendrite formation during recharging.

Response to Arguments

13. Applicant's arguments with respect to claims 28-46 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

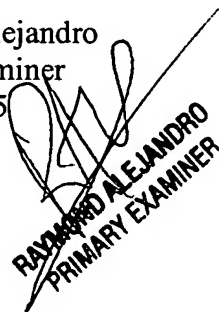
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282.

The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Raymond Alejandro
Primary Examiner
Art Unit 1745



RAYMOND ALEJANDRO
PRIMARY EXAMINER